17/05/19

Roll No. | | | | | | | | | | |

B.E / B.Tech / B. Arch (Full Time) DEGREE END SEMESTER EXAMINATIONS, MAY / 2019

MANUFACTURING ENGINEERING (MECHANICAL

Semester VII

MF8077 Product Design and Development (E&T)

(Regulation R 2012)

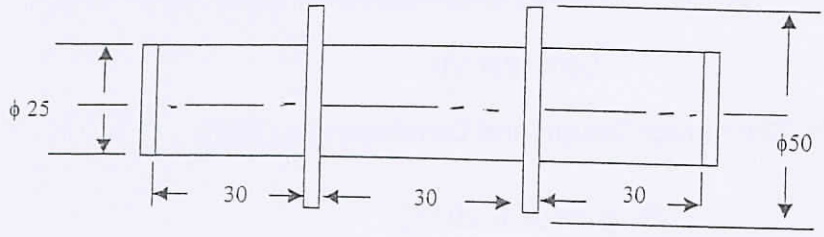
Time: 3 Hours | Answer ALL Questions | Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. Define - Product.
2. Who is the designer of a product for its 'use' and 'life'?
3. What is known as product concept generation?
4. List the steps followed to identity the customer needs.
5. Do service products, such as bank accounts have architectures? Discuss.
6. What are the steps by which product architecture is established?
7. Is industrial design worth the investment ? Explain.
8. Explain how aesthetics play important role in Industrial design of a product of your choice.
9. Write down the Design for Assembly index (DFA) and explain it.
10. What is known as ' Error Proofing' in DFM?

Part – B (5 x 16 = 80 marks)

11. Analyse the different processes and arrive at the optimal design for Manufacturing of the given product made of structural steel.
The demand is for 1000 units. All dimensions in (mm) (16)



12. a) Discuss, with flow diagram, the front end activities comprising the concept development phase. (16)

(OR)

b) i) Give the general lists for effective interaction with customers regarding product development. (8)

ii) How do you interpret raw data in terms of customer needs? (8)

13. a) i) Explain the five-step concept generation method using suitable flow chart (8)

ii) How do you carry out concept scoring in six steps? Explain. (8)

(OR)

b) What are some different ways you could communicate as concept for new a user interface for an automotive audio systems? What are the strengths and weaknesses of each approach?

14. a) i) Explain how the architecture of motorcycle is established in 4-step process (16)

(OR)

b) i) Sketch and explain the three types of modular architecture. (6)

ii) Explain the implications of the architecture in-terms of product change, product variety, product performance and component standardization (10)

15. a) i) How important is industrial design to a product? Discuss. (8)

ii) Is industrial design worth the investment? Explain. (8)

(OR)

b) i) What are six phases of industrial design process? How is it carried out in phased manner? (8)

ii) How is the quality of industrial design assessed ? Explain with suitable example. (8)